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### PLANTAE MEXICANAE IV

BY

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#### NOTES ON THE HISTORY AND DISTRIBUTION OF RHODOCHITON VOLUBILE

*Rhodochiton volubile* Zuccarini ex Otto & Dietrich has interested horticulturists ever since its discovery more than one hundred years ago. It represents a monotypic genus of the *Scrophulariaceae*, very close to *Lophospermum*, to which it has twice been assigned in the past; at the present time, *Rhodochiton* is maintained as distinct. This genus is endemic to Oaxaca, and it is probable that all of the collections are from the mountainous portions of the northeasternmost part of that state. The seeds which produced the type plant were collected somewhere in Mexico by Baron Karwinski; the fact that Karwinski collected in the mountains, where *Rhodochiton* has since been found, is offered as evidence that the place of origin of the species was northeastern Oaxaca. The native habitat of the plant is in the dark, dense, cool rain-forests at very high altitudes.

*Rhodochiton volubile* Zuccarini ex Otto & Dietrich in Verh. Ver. Gart. Preuss. 10 (1829?) 152, t. 1—Zuccarini in Abh. Akad. Muench. 1 (1832) 306, in *synon.*

*Lophospermum atro-sanguineum* Zuccarini in Abh. Akad. Muench. 1 (1832) 306.

*Lophospermum Rhodochiton* D. Don in Sweet Brit. Fl. Gard. n.s., 3 (1834) t. 250.

Zuccarini, who first grew this plant from seed in Europe, originally believed that it represented a new genus, and he sent out seeds of it under the unpublished name "*Rhodochiton volubile*." Referring to this use of the name, Zuccarini later wrote (1): "Ich hielt sie anfangs, die Dons Gattungscharacter in einigen Dingen abweicht, für ein neues Genus und versendete die im Sommer 1829 gewonnenen Samen unter dem Namen *Rhodochiton volubile* an mehrerer Gärten."

With the seeds, he sent out a description of the plant to Otto and Dietrich who shortly thereafter published the name *Rhodochiton volubile*, together with the description which Zuccarini had communicated to them.

In 1832, Zuccarini (1) altered his opinion concerning the generic status of the plant and published a description of it under the name *Lophospermum atro-sanguineum*, apparently unaware that Otto and Dietrich had already validated the name *Rhodochiton volubile*.

Zuccarini was not alone in believing that *Rhodochiton volubile* represented a species of *Lophospermum*, for D. Don described this plant in 1834 as *Lophospermum Rhodochiton*.

Munz (2), the most recent monographer of the section of the *Scrophulariaceae* to which *Rhodochiton* belongs, maintains *Rhodochiton* as a monotypic genus.

#### FIELD COLLECTIONS OF RHODOCHITON VOLUBILE:

MEXICO: Oaxaca, District of Villa Alta, Llano Verde near San Juan Juquila, long.  $96^{\circ} 17'$ , lat.  $17^{\circ} 10'$ , July 1839, *H. Galeotti 1069*; District of Villa Alta, San Juan Juquila, long.  $96^{\circ} 17'$ , lat.  $17^{\circ} 10'$ , 1839, *Hartweg s.n.*; "Oaxaca", 1894, *Nelson s.n.*; District of Cuicatlán, between San Juan Zautla and Papalo Concepción, long.  $96^{\circ} 45'$ , lat.  $17^{\circ} 52'$ , June 16-22, 1898, *Conzatti & González 756*; District of Ixtlán, Cerro Malacate, long.  $96^{\circ} 20'$ , lat.  $17^{\circ} 19'$ , alt. 2300-2500 m., June 13, 1939, *Schultes 661*.



*Rhodochiton volubile* represents one of the many local endemics which are found in southern Mexico. It is known chiefly through the many illustrations of it which have appeared in horticultural publications. Very carefully drawn figures are to be found in the Botanical Magazine 61 (1834) t. 3367 and in the Botanical Register 8 (1835) t. 1755.

Herbarium material of this plant is extremely rare. Most of the existing specimens, moreover, represent collections which were made in botanical gardens. Field collections of this species are herbarium rarities. I am aware of only five such collections. Munz (2) cites nine herbarium specimens, representing the eight collections which were available to him for examination. Of these, only two are field collections; the other six were taken from cultivated plants. Munz did not examine and does not refer to the Hartweg material which is in the herbarium at Kew and which was cited by Hemsley in Godman & Salvin Biol. Centr.-Am. 2 (1882) 442, nor to the Galeotti material which was cited by Martens and Galeotti in Bull. Acad. Roy. Bruxelles 12, No. 7 (1845) 3.

The collections represented by: *Hartweg s.n.*, *Galeotti 1069*, *Conzatti & González 756* and *Schultes 661* are from the mountains of the northeastern portion of the State of Oaxaca. The Nelson collection, although it is known to be from the State of Oaxaca, lacks information concerning the precise locality where it was made. Since Nelson made extensive collections in the northeastern part of Oaxaca in 1894, especially in the mountains of the Districts of Villa Alta and Choapam, there is every reason to believe that his specimen of *Rhodochiton volubile*, preserved in the United States National Herbarium, came from the same part of the state as the other four collections.

The restricted distribution of *Rhodochiton volubile* is

emphasized by the foregoing list of field collections. Since many of the botanists who have worked in northeastern Oaxaca (a poorly mapped region) neglected to supply sufficient information concerning localities, it is sometimes difficult, if not impossible, to determine the precise localities where collections were made, unless one is personally acquainted with the region. As exact localities are of extreme importance, especially in the study of endemics, I have cited all of the known field collections of *Rhodochiton volubile* and have added complete geographical data.

We do not know exactly where in Mexico Baron Karwinski collected the seeds from which the type of *Rhodochiton volubile* was grown. In his description, Zuccarini stated merely that the plant "crescit in imperio mexicano."

Karwinski spent five years in Mexico. Although most of this time was devoted to botanical exploration in Oaxaca, little is known concerning the precise localities which he visited. No comprehensive itinerary of his trip is available. However, two of Karwinski's localities, which Zuccarini cited incidentally, are of interest. In a footnote to an article (3) on the *Cactaceae* collected in Mexico by Karwinski, Zuccarini stated that Karwinski had worked "bei San Pedro Nolasco" and "bei Yavesía in der Prov. Oaxaca." Both of these localities are very near the places where the Hartweg, Galeotti, and Schultes collections were made. San Pedro Nolasco is a mountain near the boundary between the Districts of Ixtlán and Villa Alta, while Santa Maria Yavesía (long.  $96^{\circ} 25'$ , lat.  $17^{\circ} 14'$ ) is a small Indian village in the easternmost part of the District of Ixtlán.

Inasmuch as *Rhodochiton volubile* appears to be endemic to northeastern Oaxaca and since Karwinski is known to have explored the very forests where this spe-



cies grows, are we not justified in assuming that the seeds which produced the type plant were collected in Oaxaca, most probably on the high, rain-forested peaks of the northeastern mountain chains of that state?

Since no adequate description of *Rhodochiton volubile* in the wild state has ever been published, the following notes may be of interest. My collection of this species was made in the dense, cool and luxuriant rain-forest of Cerro Malacate at an altitude of 2300 to 2500 meters. The plant is a luxuriant vine which twines on the foliage of shrubs and low trees in the deeper parts of the forest where little direct sunlight penetrates.<sup>1</sup> It presents a very beautiful and striking appearance. The deep purple corollas and reddish calyces of the flowers are very noticeable against the dark green of the forest shrubbery, and together with the brilliant vermilion flowers of *Epidendrum vitellinum* Lindley, constitute the most conspicuous feature in the dense shade of the forests of Cerro Malacate. Nowhere in the mountains of northeastern Oaxaca, however, is *Rhodochiton volubile* abundant. Although I searched for it carefully in other supposedly favorable localities in the Districts of Ixtlán, Cuicatlán and Teotitlán, I did not find it except on Cerro Malacate, and even there it was restricted to a very limited altitudinal range of two hundred meters.

#### LITERATURE CITED

1. Zuccarini, J.G.: in Abh. Akad. Muenchen 1 (1832) 306.
2. Munz, P.A.: *The Antirrhinoideae-Antirrhineae of the New World*, in Proc. Calif. Acad. Sci. ser. 4, 15 (1926) 396.
3. Zuccarini, J.G.: in Abh. Akad. Muenchen 3 (1837) 12.

<sup>1</sup>In this connection, it is interesting to note that Lindley (in Edwards' Bot. Reg. 8 (1835) t. 1755) very early pointed out to horticulturists in England that the plant's "greatest enemy seems to be bright sunlight."

# PLANTAE MEXICANAE V

BY

RICHARD EVANS SCHULTES

## DESMONCUS CHINANTLENSIS AND ITS UTILIZATION IN NATIVE BASKETRY

THE DISCOVERY of the use of *Desmoncus chinantlensis* Liebmann ex Martius in the manufacture of baskets among the Chinantec Indians of Oaxaca has prompted me to make a study of the literature for comparative information from other regions.

Although considerable interest in basketry and weaving has been manifest in recent anthropological researches, I have been unable to find in anthropological literature any references to the use of this palm in weaving. There are, however, several scattered and incidental references to this use in technical taxonomic papers.

In view of the importance of *Desmoncus* as an excellent material in basket-making and because of the lack of easily available information regarding its use, it has seemed advisable to present the following notes on the plant and its utilization.

### I. BOTANICAL CONSIDERATIONS

***Desmoncus chinantlensis* Liebmann** in Overs. Dansk. Vid. Selsk. Forh. 1845 (1846) 8, *nomen nudum*—Liebmann ex Martius Hist. Nat. Palm. 3 (1850) 321.

*Atitara chinantlensis* (Liebmann) O. Kuntze Rev. Gen. Pl. 2 (1891) 727.

MEXICO: Oaxaca, District of Choapam, San Juan Lacova, long.  $95^{\circ} 55'$ , lat.  $17^{\circ} 29'$ , June 1842, *Liebmann 6594* (COTYPE); same locality and date, *Liebmann 6595* (TYPE); same locality and date, *Liebmann 6596* (COTYPE).

Chinantec name: *huan-ka*.



Spanish names: *ballí*; *bejuco de canastos*; *junco*; *junco de jaguay*; *metambilla*.

Zapotec name: *ba-ga-a*.

*Desmoncus chinantlensis* is a tall, stout-stemmed, subscandent shrub which is characteristically armed on the sheathing petioles with large, strong spines. The leaf blades are pinnate; the pinnae, elongate-elliptic.

The only representative of the genus in Mexico, *Desmoncus chinantlensis* is a very localized endemic, occurring in the District of Choapam (the so-called "Chinantla") of northeastern Oaxaca (where Liebmann collected the type material in 1842) and possibly in the adjacent portion of Vera Cruz. One sterile collection (*H. Ross 1122*) from the isthmus region of Vera Cruz has been referred to *D. chinantlensis* by Burret (Fedde Repert. 36 (1934) 201). Standley (Contrib. U.S. Nat. Herb. 23 (1920) 84) has stated that plants of this genus are said to occur in Tabasco; while *Desmoncus* is to be expected in Tabasco, I have not been able to find any collection of it from that state.

*Desmoncus chinantlensis* is very abundant in the rainforests on the Atlantic slopes of the mountains of the District of Choapam. It is one of the most conspicuous of the several genera of low palms (*Bactris*, *Chamaedorea*, *Eleutheropetalum*, *Geonoma*, *Hexapetion*, *Reinhardtia*, etc.) which are well developed in the forests of this region.

In 1933, Bailey (Gentes Herb. 3 (1933) 89-92) concluded that a collection of *Desmoncus* from Barro Colorado Island, Panama, which had been identified as *D. polyacanthos* Martius, was "probably *D. chinantlensis*." He pointed out that the Panamanian material matched the type collection of *D. chinantlensis* very closely. Stating that no illustration of *Desmoncus chinantlensis* was

available, he published a drawing of the leaf of the specimen from Panama (fig. 71, on p. 91).

If Bailey's tentative identification be correct, it is evident that *Desmoncus chinantlensis* represents not an endemic, but rather a very wide-ranging and variable species. At the present time, however, most authorities are of the opinion that *Desmoncus* is made up of a number of very localized endemic species. In this respect, *Desmoncus* appears to agree with several of the related genera of palms which are noteworthy because of the large number of endemic species which they contain. The genus *Desmoncus* contains about fifty known species at the present time.

In this connection, Bartlett wrote in his *Certain Desmonci (Palmae) of Central America and Mexico* (Journ. Wash. Acad. Sci. 25 (1935) 81-82): "It appears that the species of *Desmoncus* are in reality rather local in distribution. . . . Either there are many local species with rather slight distinctions, as the writer believes, or else there is a very wide-spread species, *Desmoncus chinantlensis* Liebm., made up of a group of varieties, or (as some botanists might even conclude) of taxonomically negligible variations." Bartlett was of the opinion that Bailey's Panamanian material did not represent *D. chinantlensis*.

In identifying his Panamanian material of *Desmoncus*, Bailey (l.c.) discovered that there were apparent discrepancies between the type of *D. chinantlensis* (*Liebmann 6595*) at Copenhagen and the two collections (*Liebmann 6594* and *6596*) in the United States National Herbarium. Inasmuch as difficulty has been experienced in identifying specimens of *Desmoncus* because of the uncertainty which these discrepancies have caused, Bartlett (l.c.) designated the two Liebmann collections in the United States National Herbarium as cotypes.



Fortunately, an excellent set of drawings of *Desmoncus chinantlensis* is now available for systematic study. Liebmann skilfully executed a number of drawings of his Mexican palms. These have never been published and, until recently, have been unavailable to most investigators. Through the courtesy of the Field Museum of Natural History, photographic copies of a number of the drawings from Liebmann's *Icones Ined.* have been distributed to several herbaria. The excellence and completeness of the figures of *D. chinantlensis* should remove every difficulty which may arise in the future as a result of ambiguity in the interpretation of the original description or of discrepancies between the three original collections.

## II. UTILIZATION

The manufacture of baskets, trays, hampers and other containers of excellent quality is an important industry among the forest-dwelling Chinantec Indians of the "Chinantla." The principal seats of this craft are the mountain villages of San Juan Lacova (long.  $95^{\circ} 55'$ , lat.  $17^{\circ} 29'$ ), San Juan Petlapa (long.  $96^{\circ} 03'$ , lat.  $17^{\circ} 29'$ ), San Juan Teotalcingo (long.  $95^{\circ} 58'$ , lat.  $17^{\circ} 58'$ ), and San Juan Toabela (long.  $96^{\circ} 04'$ , lat.  $17^{\circ} 32'$ ). In these remote villages, most of the men are skilled in basket-making.

This industry is ancient and is said to be much less extensive among the Chinantecs now than it was formerly. According to Bevan (*The Chinantec: Report on the central and south-eastern Chinantec region. Vol. 1—The Chinantec and their habitat*, Inst. Panam. Geogr. Hist., Publ. 24 (1938) 45), the name of the very ancient Chinantec village of San Juan Lacova is a Zapotec word meaning "place of baskets" or "place of vines."

Most of the baskets, trays and hampers are used local-

ly in the Chinantec villages. The surplus is taken to the Zapotec town of Santiago Choapam (long.  $95^{\circ} 54'$ , lat.  $17^{\circ} 22'$ ) and is there sold to Zapotec tradesmen for very small sums. The Zapotecs take the baskets to nearby villages and sell them at much higher prices. Apparently none of the excellent Chinantec basketry reaches the markets of Oaxaca City. The baskets which are sold in the capital are made by the Mixtecs of western Oaxaca and are constructed of entirely different plant materials.

The basic plant in this forest Chinantec industry is *Desmoncus chinantlensis*. The men gather the flexuous stems of the palm, remove the sheathing spiny petioles and bark, and use the lustrous white stems without further treatment. One of the Chinantec names of the plant, *huan-ka*, means, according to the natives, "basket (*ka*) vine (*huan*)."

While most of the baskets are made from *Desmoncus chinantlensis*, other plants may enter into their construction. The fibrous aerial roots of epiphytic species of *Anthurium* and *Philodendron*, which are very abundant in the forests of the District of Choapam, are also utilized. Usually only portions of the baskets, especially the covers, are made from the *Anthurium* and *Philodendron* roots, while the main part is constructed of *Desmoncus* stems. Sometimes, however, baskets are made entirely of *Anthurium* or *Philodendron* roots, but these baskets are not so strong and durable as those which are entirely or partly made of *Desmoncus* stems.

According to Bevan (l.c., p. 45), the Chinantec baskets are constructed from the "vine from which are made the splendid hammock-bridges so characteristic of the Chinantec." Many different lianas enter into the construction of the long and beautiful suspension-bridges which are so numerous in northeastern Oaxaca. The most common materials which are used for this purpose I



found to be the stems of some species of *Cissus*, *Entada* and *Vitis* and the elastic aerial roots of some species of *Ficus*. These four plants are not used in Chinantec basketry.

In the Collection of Economic Plants of the Botanical Museum of Harvard University, there are three Chinantec baskets which were collected in San Juan Teotalcingo in June 1939. Two of these are constructed of *Desmoncus chinantlensis* and are exceedingly strong; the third is made almost entirely of the aerial roots of *Philodendron sagittifolium* Liebm., but with a framework of *Desmoncus chinantlensis*.

In British Honduras, according to Bartlett (l.c., p. 82), the following species of *Desmoncus* (very closely allied to *D. chinantlensis*) are used in making baskets: *D. anomalus* Bartlett, *D. ferox* Bartlett, *D. Lundellii* Bartlett, *D. quasillanus* Bartlett and *D. uxactunensis* Bartlett. In this connection, he writes: "These related plants of northern Central America are called 'basket tie-tie' or 'basket-whist' by the inhabitants of British Honduras, and 'bayal' by the Spanish-speaking people and the Maya. In British Honduras, any vine is a 'tie-tie' and the *Desmonci* are the particular 'tie-ties' of which baskets are made, whence the name." Similarly, Pittier (*Plantas usuales de Costa Rica* (1908) 114) stated that *matamba* (*D. costaricensis* (Kuntze) Burret)<sup>1</sup> is used in the manufacture of baskets in Nicoya.

In South America, *Desmoncus horridus* Splitgerber ex Martius is used in basketry in Venezuela (Pittier: *Manual de las plantas usuales de Venezuela* (1926) 100-101).

<sup>1</sup>Pittier reported *matamba* as *Desmoncus oxyacanthos* Martius, but, according to Standley (Field Mus. Nat. Hist. Bot. Ser. 18 (1937) 117), this plant is *D. costaricensis*, an endemic of Costa Rica. Standley likewise notes the use of this plant in basket-making in Nicoya.

Pittier quotes Ernst as saying that the stems of this plant are the best and most durable of all cordage materials. In his list of fibre plants of the World (U.S. Dept. Agric. Fiber Invest. Rept. 9 (1899) 149), Dodge makes no mention of the use of *Desmoncus* in basketry, but he reports that the Brazilian *D. macroacanthos* Martius is the source of a useful fiber.



## ORCHID STUDIES, XII

BY

LOUIS O. WILLIAMS

THE PRESENT number of the Orchid Studies is a collection of short generic observations which have been made during the past two years. Four subtitles make up the number, as follows: 1. *Restrepia Humboldt, Bonpland & Kunth*, a consideration of generic validity. 2. *Nageliella*, a new name for the orchidaceous genus *Hartwegia Lindley*. 3. The orchid genera *Coelia Lindley* and *Bothriochilus Lemaire*. 4. A new genus of the Orchidaceae from Central America.

### 1. *RESTREPIA Humboldt, Bonpland & Kunth*, A CONSIDERATION OF GENERIC VALIDITY

The genus *Restrepia*, a member of that complex group of genera, the *Pleurothallideae*, recently came under observation when an attempt was made to write a generic description of it that would exclude all known variations of *Pleurothallis*.

*Restrepia* was first described by Humboldt, Bonpland and Kunth to contain an Andean plant for which they gave an admirable illustration. From that time (1818) to the present the genus ordinarily has been accepted without question; except by that master of generic definition George Bentham who apparently had some misgivings about the validity of the genus (cf. Journ. Linn. Soc. Bot. 22 (1881) 292), although he retained it in the Genera Plantarum.

Species have been added to *Restrepia* by nearly all orchidologists who have worked with American Orchids: Lindley, Reichenbach filius, Rolfe, Schlechter and Ames & Schweinfurth.

The genus *Restrepia*, so far as I am able to determine, has but one character which would entitle it to generic rank and that is the fact that all *Restrepias* have four pollinia instead of two. However, this character may be used only if all of the species of *Pleurothallis* having four pollinia are removed from that genus. Schlechter has proposed the genus *Barbosella* for some of the species having four pollinia. This proposition, however, does not settle the matter, because there are other species of *Pleurothallis* which are known to have four pollinia and yet cannot be placed in *Restrepia* or *Barbosella* as these genera are currently restricted. An example is the anomalous *Pleurothallis ophiocephala* Lindl. If we allow it to remain in *Pleurothallis*, where it seems to belong, then we must admit the genus *Pleurothallis* as having either two or four pollinia. If it is excluded from *Pleurothallis*, it would seem to constitute a genus of its own. To admit *Pleurothallis ophiocephala* to generic rank would obligate one to admit other such variations to the same rank and hence cause unwarranted generic segregation among the *Pleurothallideae*.

*Barbosella* Schlechter, as delimited by him, is a closely allied group of species having four pollinia. The group is very closely allied to the *Restrepias* of traditional usage, from which it differs only in the fact that the dorsal sepal and the petals do not have clavellate apices. Ames and Schweinfurth have taken most of the valid species of *Barbosella*, which were not originally described as *Pleurothallis*, and have transferred them to that genus. In making these transfers they did not mention that *Barbosella* is more closely allied to *Restrepia*, which they maintained, than it is to *Pleurothallis*. While I agree that *Barbosella* should be placed in *Pleurothallis*, I would not agree to this reduction if *Restrepia* were to be retained. By permitting the species described as *Barbosella* to re-



main in *Pleurothallis*, we must characterize *Pleurothallis* as having either two or four pollinia.

In *Restrepia*, then, we find that the main generic character (the four pollinia) used to segregate it, is duplicated in *Pleurothallis*.

One other character for segregation of *Restrepia* remains, the curious clavellate or antenna-like apices of the petals and sometimes of the dorsal sepal. This character is quite clear in some species, while in others it is all too vague. Even were this character always observable, and even if hints of it were not present in those species which were segregated as *Barbosella*, I should not be inclined to consider of generic rank plants exhibiting this character when not accompanied by other significant characters.

It would doubtless be of value to retain the name *Restrepia* for a section of *Pleurothallis* for those plants which exhibit clavellate sepals and petals as this character usually gives a rather distinctive appearance to the plants.

**PLEUROTHALLIS** *R. Brown* section **Restrepia** (*HBK.*) *L. O. Williams* comb. nov.

*Restrepia* Humboldt, Bonpland & Kunth Nov. Gen. & Sp. 1 (1816) 366, t. 94.

In Mexico and Central America,—in addition to *Pleurothallis muscifera* Lindl. (*Restrepia muscifera* (Lindl.) Reichb.f.), *Pleurothallis pilosissima* Schltr. (*Restrepia pilosissima* Ames & Schweinf.) and perhaps one or two others,—there are the following species, formerly referred to *Restrepia*, which should be transferred to this section of *Pleurothallis*.

**Pleurothallis Amesiana** *L. O. Williams* nom. nov.

*Restrepia Lankesteri* Ames & Schweinfurth in Sched. Orch. 10 (1930) 20, non *Pleurothallis Lankesteri* Rolfe.

**Pleurothallis Dayana** (*Reichb.f.*) *L. O. Williams* comb. nov.

*Restrepia Dayana* Reichenbach filius in Gard. Chron. n.s. 4 (1875) 257.

**Pleurothallis filamentosa** (*A. & S.*) *L. O. Williams* comb. nov.

*Restrepia filamentosa* Ames & Schweinfurth in Sched. Orch. 8 (1925) 19, fig. 3.

**Pleurothallis subserrata** (*Schltr.*) *L. O. Williams* comb. nov.

*Restrepia subserrata* Schlechter in Fedde Repert. Beihefte 19 (1923) 291.

**Pleurothallis xanthophthalma** (*Reichb.f.*) *L. O. Williams* comb. nov.

*Restrepia Lansbergii* "Reichb.f." sensu Hooker in Bot. Mag. 87 (1861) t. 5257.

*Restrepia xanthophthalma* Reichenbach filius in Hamb. Gartenzeit. 21 (1865) 300.

2. **NAGELIELLA**, A NEW NAME FOR THE ORCHIDACEOUS GENUS *HARTWEGIA* *Lindley*.

**NAGELIELLA** *L. O. Williams* nom. nov.

*Hartwegia* Lindley in Bot. Reg. 23 (1837) sub t. 1970, non Nees (1831).

**Nageliella purpurea** (*Lindl.*) *L. O. Williams* comb. nov.

*Hartwegia purpurea* Lindley in Bot. Reg. 23 (1837) sub t. 1970—Reichenbach filius in Saunders Refug. Bot. 2 (1870) t. 94.

Lindley named this monotypic orchid genus for Theodore Hartweg who, somewhat more than a century ago,



was one of the most enthusiastic collectors of Mexican orchids. Due to the fact that Lindley's name is a homonym of the earlier *Hartwegia* Nees, it is necessary to give the genus a new name.

To carry out Lindley's idea of honoring a collector especially interested in Mexican Orchidaceae, I take this opportunity of renaming the genus for Mr. Otto Nagel. Mr. Nagel, collecting in Mexico just one century after Hartweg, has probably collected more species and specimens of Mexican orchids and travelled more widely over Mexico than any other collector who has ever been in that delightful country.

*Nageliella* is a monotypic genus. Two other species which were described under *Hartwegia* Lindl. appear to belong elsewhere.

Dr. R. Mansfeld (Notizbl. Bot. Gart. Berlin 13 (1938) 667) has indicated that he thought that *Hartwegia* should be referred to the subtribe *Laeliinae* (*Laelieae*) rather than to the *Ponerinae* (*Ponereae*). The two subtribes stand very close to one another, and it is sometimes difficult to distinguish them; but it seems best to retain *Nageliella* in the *Ponereae*, since I find a distinct column-foot in *Nageliella* which is never found in the genera of the *Laelieae*.

### 3. THE ORCHID GENERA *COELIA* Lindley AND *BOTHRIOCHILUS* Lemaire

In 1830, Lindley described the genus *Coelia* in his *Genera and Species of Orchidaceous Plants*, p. 36, basing it on a drawing made by Bauer. When he received material for study, the characters of the genus were emended (Bot. Reg. 28 (1842) t. 26).

Four additional species have been referred to the genus since its publication. All four of these species are at variance with the original species in a number of char-

acters. The fact that there are several differences has been generally overlooked. However, Lemaire erected the genus *Bothriochilus* to contain one of the species. Hooker noted the differences in some of the species (Bot. Mag. 107 (1882) t. 6628) and suggested that *Coelia* might be divided into two sections, commenting at the same time on Lemaire's genus in the following words: "Bothriochilus is proposed by Lemaire, but it has no characters to stand upon, and indeed it is very probable that plants with intermediate characters will be found uniting the group." Hooker's division of the group was entirely superficial and overlooked the more stable characters which are present.

Bentham and Hooker in the *Genera Plantarum* so described *Coelia* that the characters of no plant which I know will fit it. Part of the characters attributed to it were derived from *Coelia triptera* and part of them from *C. macrostachya* and *C. bella*, but in such a way as to make them inapplicable to the component species of the genus. Two examples of this will suffice. The lateral sepals are described, in part, as follows: "... basi cum pede columnae in mentum breve v. elongatum connata.", which does not apply at all to *Coelia triptera*, the type species. The column is described, in part, as follows: "Columna brevis, latiuscula . . .", which applies to *Coelia triptera* but to no other species.

Attention should be called to the fact that the resemblance of the species which have been referred to *Coelia* is very close. There seem to be no vegetative characters which would assist in separating them generically.

A tabulation of characters which are available for generic segregation may be useful and is given here. I believe that these characters are sufficient to necessitate the recognition of two genera.

## COELIA

(*C. triptera*)

Column-foot lacking or nearly so.

Column very short and broad.

Lateral sepals not forming a mentum.

Lateral sepals not adnate to the column nor to the obscure column foot.

Lip not deflexed, saccate nor otherwise complicated at the apex of the claw.

## BOTHRIOCHILUS

(*B. macrostachyus*, *B. bellus* and *B. guatemalensis*)

Column-foot subequal to the column in length.

Column long and slender.

Lateral sepals forming a distinct mentum.

Lateral sepals adnate to the column-foot.

Lip either sharply deflexed or saccate (one species with a short didymous sac) at the apex of the claw.

These considerations seem to indicate that two genera are present. For those species which are generically distinct from the type species of *Coelia*, I reinstate the genus *Bothriochilus* Lemaire which contains the following species.

1. ***Bothriochilus bellus*** *Lemaire* in *Illustr. Hort.* 3 (1856) *Misc.* p. 30.

*Bifrenaria bella* *Lemaire* in *Jard. Fleuriste* 3 (1853) t. 325.

*Coelia bella* *Reichenbach filius* in *Walpers Ann.* 6 (1861) 218—*Hooker* in *Bot. Mag.* 108 (1882) t. 6628.

*Coelia picta* *Bateman ex Hooker* in *Bot. Mag.* 108 (1882) sub t. 6628, *nomen*.

The largest-flowered species of the genus. Known from Guatemala and Honduras.

2. ***Bothriochilus guatemalensis*** (*Reichb.f.*) *L. O. Williams comb. nov.*

*Coelia guatemalensis* *Reichenbach filius* in *Walpers Ann.* 6 (1861) 219.



A rare species which is recorded only from Guatemala. The type is said, by Reichenbach, to be in Lindley's herbarium.

3. **Bothriochilus macrostachyus** (*Lindl.*) *L. O. Williams comb. nov.*

*Coelia macrostachya* Lindley in Bentham Pl. Hartw. (1842) 92—Hooker in Bot. Mag. 79 (1853) t. 47122

*Coelia macrostachya* Lindl. var. *genuina* Reichenbach filius Beitr. Orch. Centr.-Am. (1866) 41.

*Coelia macrostachya* Lindl. var. *integrilabia* Reichenbach filius Beitr. Orch. Centr.-Am. (1866) 41.

*Bothriochilus macrostachyus* is probably the commonest species of the genus. It is known from Mexico, Guatemala, Honduras and Panama.

DUBIOUS SPECIES

***Coelia densiflora*** Rolfe in Kew. Bull. 1906: 3753

There is no material of this species (which obviously belongs to *Bothriochilus*) available for study in the Ames Herbarium. It is possible that it may be a synonym of *Bothriochilus guatemalensis*.

4. A NEW GENUS OF THE ORCHIDACEAE FROM  
CENTRAL AMERICA.

**EPIDANTHUS** *L. O. Williams gen. nov.*

(Tribus Kerosphaereae, Serie Acranthae, Subtribus (?) Polystachyeae). Sepala similia, libera, lanceolata, reflexa vel patula. Petala basi callo vel junctioe petali et columnae callo ornata. Labellum integrum vel trilobum, basi columnae adnata. Columna brevis, teres, labello vel labelli callo adnata. Rostellum breve, emarginatum; clinandrium alatum. Anthera terminalis, operculata, incurvens, biloculata. Pollinia duo, subglobosa, cerea, stipitata.

Sepals similar, free, lanceolate, reflexed or spreading. Petals with a callus at the base or at the junction of the petal and column. Lip simple or three-lobed, adnate at the base to the column, sometimes surrounding the column. Column short, terete, adnate to the lip or callus of the lip for its entire length; rostellum short, emarginate; clinandrium evenly winged. Anther terminal, operculate, incumbent, two-celled; pollinia two, subglobose, waxy; stipe to each pollinium oblong, free from the other stipe almost to the oblong-ovate gland.—Small simple or branched epiphytic herbs with slender, leafy, repent or caespitose stems, lacking pseudobulbs. Leaves distichous, jointed at the base, plane or terete, linear or subfiliform; leaf-sheaths persistent on the stems. Inflorescence a terminal, distichous, fractiflex raceme. Flowers small.—Characteristic species, *Epidanthus paranthicus* (Reichb.f.) L.O. Williams.

If we follow Schlechter's system of classification (Notizbl. Bot. Gart. Berlin 9 (1926) 563–591), *Epidanthus* apparently should be placed as the most advanced member of the tribe *Kerosphaereae*, series *Acranthae*. Whether it should be placed in the subtribe *Polystachyeae*, a group of genera predominantly of Asia and Africa but occurring in the Americas, or whether it should be placed in a new subtribe of its own, I am not sure.

There seem to be no close generic allies. Its relationship to *Epidendrum*, where all of the species have been previously placed, is no more than a superficial resemblance.

The name *Epidanthus* is derived by taking the first part of the name *Epidendrum* and adding to it the word *ἄνθος*, a flower, in allusion to the *Epidendrum*-like flowers and the fact that all of the species previously have been placed in the genus *Epidendrum*.

Lip 3-lobed or 3-lobulate.

Petals lanceolate-oblong to ovate-oblong; lateral lobes of the lip transversely and obliquely oval or triangular-oval; base of the lip cordate 1. *E. paranthicus*

Petals narrowly linear or elliptic-linear; lateral lobes of the lip semiorbicular; base of the lip rounded or cuneate 3. *E. muscicola*

Lip simple, obscurely lobulate or bilobed.

Base of the petals auriculate; lip narrowly lanceolate-triangular; acuminate 2. *E. goniorhachis*

Base of the petals not auriculate; lip not narrowly lanceolate-triangular, commonly abruptly acuminate to rostrate 1. *E. paranthicus*

## 1. *Epidanthus paranthicus* (Reichb.f.) L. O. Williams comb. nov.

*Epidendrum paranthicum* Reichenbach filius in Bot. Zeit. 10 (1852) 732—Ames, Hubbard & Schweinfurth Genus *Epidendrum* in U.S. & Middle America (1936) 145.

*Epidendrum Sancti Ramoni* Kränzlin in Vierteljahrs-schr. Naturforsch. Gesell. Zürich 74 (1929) 137.

Range: Mexico, Guatemala, Honduras, Costa Rica and Panama.

MEXICO: Nagel & Monzón 6736, 7146.

GUATEMALA: Johnson 557; Liebmann s.n.; Tuerckheim 927, 1915.

HONDURAS: Edwards 165.

COSTA RICA: Brade 1312; Brenes 534, 542; Lankester 383, 386; Pittier 2008; Standley 33916, 38560, 39484, 39503, 39570b, 39591; Standley & Torres 47748, 47761, 47986; Standley & Valerio 48348, 50364, 50791, 50824, 52377; Stork 2209; Tonduz 17617; Valerio 52.

PANAMA: Davidson 121.

## 2. *Epidanthus goniorhachis* (Schltr.) L. O. Williams comb. nov.

*Epidendrum goniorhachis* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2 (1918) 462—Ames, Hubbard & Schweinfurth Genus *Epidendrum* in U.S. & Middle America (1936) 104.



*Epidendrum fractiflexum* Lehmann & Kränzlin in Engl. Bot. Jahrb. 26 (1899) 468, non Rodrigues (1881).

Range: Costa Rica.

COSTA RICA: Brenes 84; Lankester 1019; Lehmann 1077; Smith H584; Standley 51299, 51323.

**3. *Epidanthus muscicola* (Schltr.) L. O. Williams**  
*comb. nov.*

*Epidendrum muscieola* Schlechter in Fedde Repert. Beihefte 19 (1923) 214, (as "muscicolum")—Ames, Hubbard & Schweinfurth Genus *Epidendrum* in U.S. & Middle America (1936) 126.

*Epidendrum linifolium* Ames in Sched. Orch. 7 (1924) 7, t. 20.

Range: Costa Rica.

COSTA RICA: Brenes 44, 16201; Jimenez 2015; Skutch 3377; Smith H1137, H1314; Stork 417, 1606, 3290; Standley 32967, 38255, 38317, 38326.

# A NEW VARIETY OF EPIDENDRUM FROM COSTA RICA

BY

LOUIS O. WILLIAMS

**Epidendrum** (§ *Euepidendrum*) **equitantifolium**  
*Ames* var. **aporophyllum** *L. O. Williams* var. *nov.*

A specie foliis brevioribus et latioribus differt; pedunculi elongati, foliorum apicem multo excedentes, ala minore; labellum liberum fere ad columnae basim; columnae apice non abrupte decurvata.

The variety differs from the species in having the leaves much shorter and comparatively broader with the angle of divergence seemingly greater; in having the peduncles much elongated and extending well above the apices of the subtending leaves and in having the wings of the peduncle less prominent. Furthermore, the peduncle of the variety does not simulate a leaf as does that of the species, and the lip is free from the column nearly to the base, *not* adnate nearly to the stigma. The apex of the column is not sharply decurved as it is in the species.

COSTA RICA: a fairly common orchid of hedgerows or exposed trees in pasture, Las Cóncevas, flowers pinkish, October 1928, *Lankester* 1221 (TYPE in Herb. Ames No. 35080).

The following Costa Rican specimens, cited by collector and number, also belong here:

*Brenes* 606; *Lankester* s.n., 757, 959; *Standley* 33778, 33798, 33893, 35835; *Standley & Torres* 51681, 51760; *Standley & Valerio* 47206.

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